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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,455	09/19/2003	Kenichi Nagayama	2204-031214	8363

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THE WEBB LAW FIRM, P.C.
700 KOPPERS BUILDING
436 SEVENTH AVENUE
PITTSBURGH, PA 15219

EXAMINER	
LIN, JAMES	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/666,455	NAGAYAMA ET AL.	
	Examiner	Art Unit	
	Jimmy Lin	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 4-6 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 4-6 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 19 September 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/876640.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/19/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Definition

1. The Applicant has not given "grate" any special definitions, so the term "grate" is given its ordinary meaning. According to www.dictionary.com, grate can mean a framework of parallel or crossed bars.

Claim Objections

2. Claim 6 is objected to because of the following informalities: The claim has been amended, so the status of the claim as "Original" should be changed accordingly. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 requires the forming of a cathode separator, while the formation of a cathode separator in parent claim 4 is optional. In the case when a cathode separator is optionally not formed, it is unclear how the cathode separator was formed as required by claim 6.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (U.S. Patent 6,630,785, hereafter Lu '785) in view of Lu (U.S. Patent 6,456,358, hereafter Lu '358).

Lu '785 discloses a method of making an organic electroluminescent (EL) device, the method comprising:

providing a transparent substrate 10 on which transparent electrodes 20 are formed in a striped pattern (col. 4, lines 1-6; col. 4, line 66-col. 6, line 2);

applying a chemical amplified photoresist layer 50 in a grate pattern (i.e., a framework of parallel bars) onto the substrate;

successively depositing an organic luminous layer 30 and backside electrodes 40 on the transparent electrodes through the apertures of the photoresist layer (col. 5, lines 48-56; Fig.2).

Lu '785 teaches pre-baking and surface treating the photoresist layer, but does not explicitly teach that the photoresist layer is free from water or a solvent. However, Lu '358 teaches a method of surface treating a chemical amplified photoresist layer on an organic EL device. A baking step reduces the solvents remaining in the photoresist layer and improves the strength and stability of the photoresist layer (abstract; col. 3, lines 31-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have prolonged the baking step of the photoresist layer of '785. One would have been motivated to do so in order to further increase the strength and stability of the layer. The prolonged baking step would have necessarily removed all the solvent from the layer. In addition, Lu '358 teaches the desire to remove solvent from the photoresist layer and does not teach the necessity of having residual solvent in the layer. Therefore, to have removed all of the solvent from the layer would have been an obvious modification.

Claim 5: Lu '785 teaches that the organic luminous layer is of monolayered or multilayered structure containing an organic luminous substance (col. 5, lines 51-54).

Claim 6: Lu'785 does not explicitly teach forming a cathode separator over the photoresist layer. However, Lu '785 teaches that a pixel-defining layer 60 can be formed over the first transparent electrodes to function as an additional protective layer to isolate the anodes and cathodes and that the pixel-defining layer can be any electrically insulated material (col. 4, lines 21-29). The pixel-defining layer can be formed to a grate pattern (i.e., a framework of crossed bars) (Fig. 1). Lu '785 does not explicitly teach that the chemical amplified photoresist layer is an insulating layer, but does teach that the prevents possible shorts on the EL device (col. 2, lines 57-59). Thus, the photoresist layer must have at least some insulating properties. It would have been obvious to one of ordinary skill in the art at the time of invention to have used the chemical amplified photoresist material as the particular pixel-defining material because Lu '785 teaches that the pixel-defining material should be an insulating material and because Lu '785 suggests that the photoresist material is at least somewhat insulating.

A cathode separator 50 can be formed over pixel-defining layer 60 (Fig. 1).

Lu '785 does not explicitly teach that the cathode separator and the pixel-defining layer comprising the same material can be formed in different steps. However, one could have either formed the two layers in a single step or in two steps. The two layers have different patterns and shapes (Fig.1), and forming the layers in a single step would form a complicated shape. The prior art gives little, if any, guidance as to how such a complicated shape can be formed. Therefore, to have formed the two layers of the same material in two different steps would have been an obvious modification to one of ordinary skill in the art.

Lu '358 teaches a pre-baking step (abstract), which would occur prior to the formation of the cathode separator.

8. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu '785, as applied above, in view of Filas et al. (U.S. Patent 6,495,019) and Ujihara (U.S. Patent 5,814,935).

Lu '785 is discussed above, but does not explicitly teach using a positive novolac photoresist. Lu '785 does teach that the pixel-defining layer can be any insulating material.

Filas teaches that a positive novolac photoresist can be used as an insulating material and advantageously exhibits desirable mechanical and electrical properties (col. 3, lines 29-44). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a positive novolac photoresist as the particular material for the pixel-defining layer of Lu '785 with a reasonable expectation of success because Filas teaches that such materials are suitable insulating materials.

Filas teaches that the photoresist layer is exposed to a soft bake process to evaporate some of the solvent from the layer, thereby easing the final bake treatment (col. 5, lines 50-63). Then a curing process exposes the photoresist layer to a 220 °C hotplate for 1 to 2 hours (col. 6, line 64-col. 7, line 7).

Filas teaches that some moisture is necessary for the photochemical process that takes place before the curing step (col. 6, lines 11-19), but does not explicitly teach that the moisture is completely removed from the photoresist layer during the curing step. However, the Examiner takes Official Notice that it is well-known in the EL art that moisture deteriorates luminescent layer (see, e.g., Ujihara, col. 1, lines 47-48). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have removed all the moisture from the photoresist layer of Filas in the curing step. One would have been motivated to do so in order to produce a device with better quality and a longer lifetime.

Claim 5: Lu '785 teaches that the organic luminous layer is of monolayered or multilayered structure containing an organic luminous substance (col. 5, lines 51-54).

Claim 6: Filas teaches a soft-baking step (i.e., pre-baking), as discussed above. Lu '785 teaches that a cathode separator 50 can be deposited onto the pixel-defining layer, as discussed above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JL

JL

KEITH HENDRICKS
PRIMARY EXAMINER